

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2307O-1501-1	FOR FURTHER ACTION <div style="display: flex; justify-content: space-between; font-size: small;"> see Form PCT/ISA/220 as well as, where applicable, item 5 below. </div>	
International application No. PCT/US04/34605	International filing date (<i>day/month/year</i>) 18 October 2004 (18.10.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 16 October 2003 (16.10.2003)
Applicant THE REREAGENTS OF THE UNIVERSITY OF CALIFORNIA		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____
- ☐ as suggested by the applicant.
- ☐ as selected by this Authority, because the applicant failed to suggest a figure.
- ☐ as selected by this Authority, because this figure better characterizes the invention.
- b. ☒ none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-6

- Remark on Protest**
- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A01N 1/00

US CL : 435/1.1, 1.2, 1.3

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/1.1, 1.2, 1.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
CAS ONLINE, USPTFUL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,127,177 A (TONER et al.), 3 October 2000 (03.10.2000), example 1, column 5, lines 1-10.	1-6
Y	US 5,827,741 A (BEATTIE et al.) 27 October 1998 (27.10.1998), column 2, lines 33-46, column 7, line 49-column 8, line 3.	1-6
X	US 2002/0076445 A1 (CROWE et al.) 20 June 2002 (20.06.2002), paragraph [0208].	1-6



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

28 October 2005 (28.10.2005)

Date of mailing of the international search report

09 NOV 2005

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-6, drawn to a first method, a method of loading a disaccharide into mammalian nucleated cells.

Group II, claims 7-24, drawn to a second method, a method of increasing survival of mammalian nucleated cells following drying and rehydration comprising contacting the cells with a disaccharide.

Group III, claims 25-38, drawn to a third method, a method of increasing survival of mammalian nucleated cells following drying and rehydration comprising contacting the cells with an apoptosis inhibitor.

Group IV, claims 29-35, drawn to a fourth method, a method of increasing survival of mammalian nucleated cells following drying and rehydration comprising introducing or inducing production of a heat shock protein in the cells.

Group V, claims 36-37, drawn to a fifth method, a method of increasing survival of mammalian nucleated cells comprising incubating the cells with arbutin or hydroquinone.

Group VI, claims 38-43, drawn to a first composition comprising a mammalian nucleated cell, a disaccharide and arbutin or hydroquinone.

Group VII, claims 44-45, drawn to a second composition comprising a dried mammalian nucleated cell, a disaccharide and an exogenous heat shock protein.

Group VIII, claims 46-47, drawn to a third composition comprising a dried mammalian nucleated cell, a disaccharide and an exogenous apoptosis inhibitor.

The inventions listed as Groups I-VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

An international application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the of following combinations of categories;

- (1) a product and a process specially adapted for the manufacture of said product; or
- (2) a product and a process of use of said product; or
- (3) a product, a process specially adapted for the manufacture of the said product, and a use of the said product; or
- (4) a process and an apparatus specifically designed for carrying out said process; or
- (5) a product, a process specially adapted for the manufacture of the said product and an apparatus specifically designed for carrying out said process. 37 CFR 1.475.

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The groups of invention do not fall within any category. The product of Group VI contains a mammalian nucleated cell, a disaccharide and arbutin or hydroquinone. The process of Group V does not require the introduction of a disaccharide. Thus, the product of Group VI is not made by the process of Group V.

Likewise, the product of Group VII requires a disaccharide, an exogenous heat shock protein and a dried mammalian nucleated cell. The process of Group IV does not require the presence of a disaccharide. Thus, the composition of Group VII is not made by the process of Group IV.

Likewise, the product of Group VIII requires a dried mammalian nucleated cell, a disaccharide and an exogenous apoptosis inhibitor. The process of Group III does not require the presence of a disaccharide. Thus, the product of Group VIII is not made by the process of Group III.

PCT Rule 13 does not provide for multiple compositions or multiple methods of use or making within a single application. Thus, the first appearing composition is combined with a corresponding first method of use and the additional composition and method claims each constitute a separate group.